UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/340,747	12/30/2011	William E. Rosenkrans	PA3931USAA;67097-778PUS2	3380

54549 7590 12/14/2016

CARLSON, GASKEY & OLDS/PRATT & WHITNEY
400 West Maple Road
Suite 350
Birmingham, MI 48009

EXAMINER
EASTMAN, AARON ROBERT

ART UNIT	PAPER NUMBER
3745	

NOTIFICATION DATE	DELIVERY MODE
12/14/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptodocket@cgolaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte
WILLIAM E. ROSENKRANS and ROBERT J. MORRIS[1]

Appeal 2014-006623
Application 13/340,747
Technology Center 3700

Before MURRIEL E. CRAWFORD, MICHAEL W. KIM, and ROBERT L. KINDER, *Administrative Patent Judges*.

KINDER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner's Final Rejection of claims 1–22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

---

[1] The Appellants identify United Technologies Corporation as the real party in interest. App. Br. 1.

Appellants' Invention

Appellants' invention generally relates "to a flutter sensing system for a gas turbine engine." Spec. 1, ll. 10–11. The "gas turbine engine assembly includes a nacelle, a core engine casing within the nacelle, a low pressure turbine having a pressure ratio that is greater than five, and a bypass passage established between the nacelle and the core engine casing." *Id.* Abstract. An objective of the invention is "to provide a gas turbine engine having a closed-loop flutter sensing system which achieves reduced flutter operation and minimizes performance losses of the gas turbine engine." *Id.* at 2, ll. 17–19.

Claims on Appeal

Claims 1, 9, and 21 are the independent claims on appeal. Claim 1, reproduced below, is illustrative of the subject matter on appeal:

1. A gas turbine engine assembly, comprising:

a nacelle;

a core engine casing within the nacelle;

a low pressure turbine having a pressure ratio that is greater than five; and

a bypass passage established between the nacelle and the core engine casing, wherein about 80% or more of airflow entering the engine is moved through the bypass passage.

App. Br. 10 (Claims Appendix). Notably, claim 21 does not have the limitation of claim 1 requiring "a low pressure turbine having a pressure ratio that is greater than five." Instead, claim 21 recites a sensor operable to detect an airfoil flutter condition and a controller operable to move a flap assembly of a variable area fan nozzle. *Id.* at 12.

Examiner's Rejections

The following rejections are before us for review.

I. Claims 1–20 and 22 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

II. Claims 1, 2, 5, 6, 9, 12, 13, 16, and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by Klees (US 3,792,584, issued Feb. 19, 1974).

III. Claims 3, 4, 10, 11, and 17 are rejected under 35 U.S.C. § 103(a) by Klees and Law (US 7,021,042 B2, issued Apr. 4, 2006).

IV. Claims 7, 8, 14, 15, and 20–22 are rejected under 35 U.S.C. § 103(a) by Klees and Eveker (US 6,582,183 B2, issued June 24, 2003).

V. Claim 19 is rejected under 35 U.S.C. § 103(a) by Klees and Lair (US 2005/0086927 Al, pub. Apr. 28, 2005).

ANALYSIS

Rejection I Enablement

The Examiner rejects claims 1–20 and 22 because the claims contain "subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention without undue experimentation." Ans. 2; *see* Final Office Act. 2 (Aug. 5, 2013) ("no direction has been provided by the inventors as to how to achieve the claimed pressure ratio"). The Examiner finds "the specification does not provide any of the necessary structure or measurements such that one of ordinary skill in the art would be able to make a gas turbine engine having the pressure ratio as claimed without undue experimentation." Ans. 2. The

Examiner explains that the variables needed to determine the pressure ratio are not disclosed in the application, thus it would be impossible to know what is being sought out for protection. *Id.* We have considered Appellants' arguments to the contrary but find them unpersuasive.

"[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'" *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993) (internal citations omitted). Appellants' claims are presumably broad, capturing any "low pressure turbine having a pressure ratio that is greater than five." *See MagSil Corp. v. Hitachi Global Storage Technologies, Inc.*, 687 F.3d 1377, 1381 (Fed. Cir. 2012) ("a patentee chooses broad claim language at the peril of losing any claim that cannot be enabled across its full scope of coverage"). Thus, Appellants' Specification at the time of filing must teach one of ordinary skill in the art how to make and use a low pressure turbine across the scope of the claimed pressure ratio range.

The Specification is void of any teaching as to what structure or function dictates or controls pressure ratio in a low pressure turbine. The Specification only states: "The low pressure turbine 22 has a pressure ratio that is greater than five, in one example." Spec. 5, ll. 28–29. There is no indication of how a pressure ratio is determined or what factors would lead to the pressure ratio being greater than five. The one statement about pressure ratio in the Specification lacks details needed to make or use a low pressure turbine with a pressure ratio that is greater than five.

Appellants do not cite to any specific portion of the Specification as enabling the scope of the claim language. *See* App. Br. 4–5; Reply Br. 2. Instead, Appellants contend "a worker of reasonable skill in the art could make a gas turbine engine having a low pressure turbine with a pressure ratio that is greater than five in view of [Appellants'] disclosure and the information known in the art without undue experimentation." App. Br. 4. Appellants seem to suggest that achieving a pressure ratio greater than five is just something a person of ordinary skill in the art would understand. Appellants contend:

> A person having skill in this art would be able to determine the metes and bounds of these claim terms. Pressure ratios are a common parameter associated with gas turbine engines and the structures necessary to achieve such ratios would be identifiable by a person of skill in the art.

Id. at 5. Appellants also contend "the specification need not contain a fully detailed example if the invention is otherwise disclosed in such a manner that one skilled in the art would be able to practice it without an undue amount of experimentation." *Id.* at 4.

The record before us does not support Appellants' contentions that structures necessary to achieve such ratios would be well-known to a person of skill in the art. The Specification does not provide any explanation as to how pressure ratios are modified or what structures impact the pressure ratio. Appellants argue the structure to achieve the claimed pressure ratio is the entire low pressure turbine. Reply Br. 2. This generalization does not, however, provide sufficient evidentiary or analytical basis to conclude the Specification provides sufficient teaching to arrive at a pressure ratio greater than 5. Considering the degree of detail that would be necessary to achieve

a pressure ratio greater than 5, more than attorney argument and generalities are needed. *See In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

Because Appellants' combined disclosure fails to teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation, we sustain the Examiner's rejection of claims 1–20 and 22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

Rejection II Anticipation Based on Klees

Appellants contend the same limitation discussed above is missing from the disclosure of Klees. *See* App. Br. 6–7; Reply Br. 3. We agree that the Examiner has not persuasively established that Klees discloses the requirement of "a low pressure turbine having a pressure ratio that is greater than five" required in independent claims 1 and 9. *See* App. Br. 10–12.

Appellants contend that "*Klees* is completely silent about the pressure ratios of the engines described therein." App. Br. 6. The Examiner cites to numerous figures within Klees to support the rejection and finds that these figures "show a plurality of turbine stages wherein each stage downstream of another is a low pressure stage relative to the one preceding it in the flow direction." Ans. 3. Even if the Examiner's statement is accurate, it still does not address the limitation as claimed, which requires a specific pressure ratio that is greater than five. In the evidence cited by the Examiner, Klees is silent as to pressure ratio. The Examiner does not persuasively explain how the figures of Klees relate to the claimed pressure ratio. For the reasons set

forth above, we do not sustain the Examiner's rejection of claims 1, 2, 5, 6, 9, 12, 13, 16, and 18 under 35 U.S.C. § 102(b).[2]

Rejection III Obviousness

Claims 3, 4, 10, 11, and 17 are rejected under 35 U.S.C. § 103(a) by Klees and Law. Each of these claims depend directly or indirectly from claims 1 and 9. Because the Examiner relies on Klees as teaching the claimed "low pressure turbine having a pressure ratio that is greater than five" and because the Examiner does not rely on Law as correcting the deficiency noted above for this limitation, we likewise do not sustain the Examiner's rejection of claims 3, 4, 10, 11, and 17 under Section 103(a).

Rejection IV Obviousness

Claims 7, 8, 14, 15 and 20–22 are rejected under 35 U.S.C. § 103(a) by Klees and Eveker. Claims 7, 8, 14, 15, and 20 depend directly or indirectly from claims 1 and 9. Because the Examiner relies on Klees as teaching the claimed "low pressure turbine having a pressure ratio that is greater than five" and because the Examiner does not rely on Eveker as correcting the deficiency noted above for this limitation, we likewise do not sustain the Examiner's rejection of claims 7, 8, 14, 15, and 20 under Section 103(a).

---

[2] Should prosecution continue for this Application, Appellants' statements made in response to the Section 112 rejections should be considered to determine whether the limitation of "a low pressure turbine having a pressure ratio that is greater than five" is admitted prior art, or otherwise taught in Eveker. *See* Eveker, Fig. 1 and accompanying text. Appellants argued that "[p]ressure ratios are a common parameter associated with gas turbine engines and the structures necessary to achieve such ratios would be identifiable by a person of skill in the art." App. Br. 5; *see also* MPEP § 2129.

Claim 21 is the only claim before us that does not require a pressure ratio that is greater than five. App. Br. 12. Regarding claim 21, Appellants further contend that "[n]either the *Klees* nor the Eveker arrangement moves a flap assembly of a variable area fan nozzle in response to detecting an airfoil flutter condition." *Id.* at 7. According to Appellants, "*Eveker* is relied on for the teachings of detecting a flutter condition but these teachings are limited to a core exhaust nozzle and not a fan exhaust nozzle." *Id.* ("The core exhaust nozzle 132 of *Eveker* is not a variable area fan nozzle because *Eveker* does not disclose a fan section."). We disagree with Appellants' contentions.

The Examiner first finds that Klees, and not Eveker, is relied on as teaching the fan limitations except for fan flutter control. Ans. 11. The Examiner finds that Eveker teaches fan flutter control (*id.*), citing to the Abstract of Eveker, which states: "The invention is a method and system for fan flutter control." Eveker, Abstract (57).

We find the Examiner's reasoning persuasive based on the record before us. The variable nozzle control system of Klees lacks the claimed sensor for detecting "an airfoil flutter condition." *See* Ans. 11. Eveker is relied on as teaching a sensor system capable of detecting airfoil flutter conditions and then modulating a "variable exhaust nozzle" to address the flutter condition. Eveker, Abstract. The Examiner explains how this flutter sensor and control capability of Eveker could have been integrated into the already existing structure (variable area fan nozzle) of Klees. Ans. 10, 11, 4 ("Klees discloses the gas turbine engine assembly of claim 1, including a variable area fan nozzle that controls a discharge airflow area of the bypass passage (col. 13 line 64 – col. 14 line 1 of Klees)."). We agree this

combination would have been reasonable "for the purposes of controlling fan flutter" as determined by the Examiner. Final Office Act. 10.

In a prior decision, we considered but rejected similar arguments made by Appellants related to Eveker. Specifically, in *Ex parte William E. Rosenkrans*, Appeal No. 2012-011973, Appln. No. 11/682,015, we determined:

> We agree with the Examiner that although one embodiment of Eveker relates to core exhaust nozzle control, one of ordinary skill would have known that the teaching of detecting flutter and thereafter directing movement of a nozzle to address the flutter could be integrated into the already existing control system and structure of Lair for adjustment of a variable area fan nozzle. Indeed, Appellants have not identified any persuasive evidence that there are structural differences for detecting flutter and thereafter directing movement of a nozzle for a core exhaust nozzle versus a variable area fan nozzle, and even if there are, such structural differences are not recited in the claim. Furthermore, Eveker broadly suggests the use of its flutter sensor in any "system for fan flutter control" and for use with a "variable exhaust nozzle." Eveker, Abstract; s*ee also* col. 3, ll. 28–35 ("Although this invention will be described in terms of a rotary compressor for a gas turbine engine . . . it also is equally applicable to other rotary compressors and similar apparatus such as axial flow compressors, industrial fans, centrifugal compressors, centrifugal chillers, and blowers.").

Slip op. 4–5 (addressing the combination of Eveker and Lair). Again, Appellants have not identified any persuasive evidence that there are structural differences for detecting flutter and thereafter directing movement of a nozzle for a core exhaust nozzle versus a variable area fan nozzle, and even if there are, such structural differences are not recited in the claim. We therefore sustain the Examiner's rejection of claim 21 under 35 U.S.C. § 103(a).

Claim 22 depends from claim 21, but it also requires the limitation "a low pressure turbine having a pressure ratio that is greater than five." App. Br. 12. Although claim 22 does not appear to be argued separately, Appellants do incorporate their arguments "stated above" as to Klees' shortcoming. App. Br. 7. Because the Examiner does not rely on Eveker as correcting the deficiency noted above for Klees' failure to teach the pressure ratio limitation, we do not sustain the Examiner's rejection of claim 22 under Section 103(a).

Rejection V Obviousness

Claim 19 is rejected under 35 U.S.C. § 103(a) by Klees and Lair. Claim 19 depends indirectly from claim 1. Because the Examiner relies on Klees as teaching the claimed "low pressure turbine having a pressure ratio that is greater than five" and because the Examiner does not rely on Lair as correcting the deficiency noted above for this limitation, we likewise do not sustain the Examiner's rejection of claim 19 under Section 103(a).

CONCLUSION

I. The rejection of claims 1–20 and 22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement is *affirmed*.

II. The rejection of claims 1, 2, 5, 6, 9, 12, 13, 16, and 18 under 35 U.S.C. § 102(b) as being anticipated by Klees is *reversed*.

III. The rejection of claims 3, 4, 10, 11, and 17 under 35 U.S.C. § 103(a) by Klees and Law is *reversed*.

IV. The rejection of claims 7, 8, 14, 15, 20, and 22 under 35 U.S.C. § 103(a) by Klees and Eveker is *reversed*. The rejection of claim 21 under 35 U.S.C. § 103(a) by Klees and Eveker is *affirmed*.

V. The rejection of claim 19 under 35 U.S.C. § 103(a) by Klees and Lair is *reversed*.

DECISION

Because at least one rejection encompassing each claim on appeal is affirmed, the decision of the Examiner is affirmed.

We AFFIRM the Examiner's Final Rejection of claims 1–22.

AFFIRMED